

25. (New) The apparatus of claim 24, wherein the conduits comprise at least one facility selected from the group consisting of a process gas manifold, vacuum manifold, water manifold and helium manifold.

26. (New) The apparatus of claim 24, wherein the conduits are connected between the facility interface and the chamber interface.

27. (New) The apparatus of claim 23, wherein each facility interface is in communication with one or more facility sources.

REMARKS

This is intended as a full and complete response to the Office Action dated September 27, 2000, having a shortened statutory period for response extended to expire on March 27, 2001. Claims 1-6 were subject to a restriction requirement under 35 U.S.C. § 121. Claims 1, 4, and 5 stand rejected, and claims 2-3, and 6 have been withdrawn by the Examiner for being drawn to a non-elected group. Applicants confirm election of Group I without prejudice for prosecution on the merits. Applicants have also added new claims 7-27 to more clearly recite aspects of the invention related to Group I. Please enter the proposed amendments and reconsider the claims pending in the application for reasons discussed below.

Claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Rubin, et al.*, U.S. Patent No. 4,852,516. The Examiner states that *Rubin, et al.* shows the invention as claimed including a multi-chamber apparatus including an initial load lock chamber for storage connected to a multitude of process chambers each chamber including a modular plumbing tray 172 and a chamber tray including links which include water lines, gas lines, vacuum lines, drain lines, and communication lines.

Applicants respectfully traverse the rejection on grounds that the reference does not teach, show, or suggest the claimed invention. *Rubin et al.* discloses a linear modular processing system for processing substrates comprising a plurality of framed modules that are each capable of independent operation. *Rubin et al.* does not teach, show, or suggest an apparatus for processing substrates, comprising one or more

process chambers disposable about a transfer chamber, a plumbing tray disposable adjacent the transfer chamber and having facility connections for the process chambers and load lock chambers, and a chamber tray disposable adjacent each process chamber, load lock chamber and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, as recited in independent claim 1 and those dependent therefrom. Further, *Rubin et al.* does not teach, show, or suggest an apparatus for distributing facilities to devices on a processing system comprising an enclosure having a plurality of facility interfaces and a plurality of chamber interfaces disposed about a perimeter thereof, as recited in new independent claim 18 and those dependent therefrom. Accordingly, applicants respectfully request withdrawal of the rejection.

Claims 1 and 4-5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Maher, et al.* (U.S. Patent No. 4,715,921). Applicants respectfully traverse the rejection on grounds that the reference does not teach, show, or suggest the claimed invention. *Maher, et al.* discloses a plasma etching system 10 consisting of four plasma reactors 12, a wafer queuing station 14, and a reactant gas injection system 24, a processor 22, and a vacuum system 26 that is coupled to the plasma reactors. *Maher, et al.* does not teach, show, or suggest a modular plumbing tray disposable adjacent the transfer chamber and having facility connections for the process chambers and load lock chambers, and a chamber tray disposable adjacent each process chamber, load lock chamber and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, as recited in independent claim 1 and those dependent therefrom. Further, *Maher, et al.* does not teach, show, or suggest an apparatus for distributing facility to devices on a processing system comprising an enclosure having a plurality of facility interfaces and a plurality of chamber interfaces disposed about a perimeter thereof, as recited in new independent claim 18 and those dependent therefrom. Accordingly, applicants respectfully request withdrawal of the rejection.

Claims 1 and 4-5 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Lei, et al.* (U.S. Patent NO. 6,083,321). The Examiner states that *Lei, et al.* shows the invention as claimed including a transfer chamber 90; a modular plumbing tray 10 adjacent the transfer chamber and having connections from the facility to the process

chambers; and a chamber tray adjacent the one or more of the process chambers including an injection control valve 18, the chamber tray having facility connections connected to one or more of the facility connections in the plumbing tray. Regarding claim 4, the examiner states that there are various manifold configurations clearly shown in Figure 3. Regarding claim 5, the examiner states that the gas delivery system 10 can be rigidly mounted to the process chamber 30 on a common module support frame 50. The examiner further states that components of the gas delivery system are listed in column 4, lines 48-58 and may include pumps and gas supplies and the respective plumbing required.

Lei, et al. teaches a gas delivery system 10 that is positioned proximal and attached to the process chamber 30. (See *Lei, et al.* at col. 2, line 66 through col. 3, line 7). *Lei, et al.* does not teach, show, or suggest a modular plumbing tray disposable adjacent the transfer chamber and having facility connections for the process chambers and load lock chambers, and a chamber tray disposable adjacent each process chamber, load lock chamber and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, as recited in independent claim 1 and those dependent therefrom. Further, *Lei, et al.* does not teach, show, or suggest an apparatus for distributing facility to devices on a processing system comprising an enclosure having a plurality of facility interfaces and a plurality of chamber interfaces disposed about a perimeter thereof, as recited in new independent claim 18 and those dependent therefrom. Accordingly, applicants respectfully request withdrawal of the rejection.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Rubin, et al.* (U.S. Patent No. 4,852,516). The examiner states that *Rubin, et al.* lacks anticipation of showing manifolds for vacuum, gas, water, or helium. The examiner further states that manifolds are well known in the art and the inclusion of manifolds in *Rubin, et al.* would be *prima facie* obvious in order to provide the required services to the process chambers.

Applicants respectfully traverse the rejection on grounds that the reference does not teach, show, or suggest the claimed invention. Claim 4 depends from claim 1 which has been distinguished above. Therefore, applicants submit that claim 4 is distinguishable from *Rubin et al.* for at least the same reasons.

Furthermore, applicants respectfully traverse the rejection on grounds that the examiner has not established a *prima facie* case of obviousness. To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. See, *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion may be expressly or impliedly derived from the prior art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). However, the teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in the applicants' disclosure. See M.P.E.P. § 2143, citing *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). Applicants submit that the examiner has not identified a motivation or suggestion from within the reference to arrive at the claimed invention, nor has the examiner identified a reasonable expectation of success derived from the reference. Accordingly, applicants submit that the examiner has rejected the claim based on the applicants' own disclosure which is impermissible hindsight, and respectfully request withdrawal of the rejection.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this office action. Accordingly, allowance of the claims is respectfully requested.

In conclusion, the references cited by the examiner, neither alone nor in combination, teach, show, or suggest the claimed invention. Having addressed all issues set out in the office action, applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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APPENDIX

IN THE SPECIFICATION:

A gas supply system 460 [which] is in communication with the internal volume 454 of the single wafer load lock 314, 316. Gas supply system 460 includes isolation valves 461, 462, 463, meter valve 464 and a diffuser 466. Conduits 467 and 468 couple the various components with the internal volume of load lock 314, 316. In one embodiment, the gas supply system 452 is used to provide an inert gas for quickly venting without generating particles within the single substrate load lock. As used here, a metering valve 464 is adjusted to provide laminar flow of gas into the single substrate load lock and then after a given time, the gas supply system shifts over to another line which allows higher gas flow. It is believed that by providing metered laminar flow of gas to fill the single substrate load lock internal volume before switching to the higher flow rate, particle generation is minimized.

Also in communication with the internal volume of single substrate load lock 314 is roughing pump 318 and cryo-pump 320 each of which is isolated from the internal volume of load lock 314, 316 by isolation valves 472 and 470, respectively. A roughing pump 318 is used to evacuate the internal volume of single substrate load lock 314 to roughing vacuum. Cryo-pump 320 is then used to further evacuate the internal volume of single substrate load lock 314 to provide high vacuum in a range of about 10^{-2} to about 10^{-7} torr in order to facilitate transfer of substrates from single substrate load lock 314 into internal transfer volume 299 which is also maintained at a suitable high vacuum.

IN THE CLAIMS

1. (Amended) An apparatus for processing substrates, comprising:
 - a) a transfer chamber;
 - b) one or more load lock chambers [connected to] disposable about the transfer chamber;

c) one or more process chambers [connected to] disposable about the transfer chamber;

d) a [modular] plumbing tray [disposed] disposable adjacent the transfer chamber and having facility connections for [one or more of the] each process [chambers] chamber and [the] load lock [chambers] chamber; and

e) a chamber tray [disposed] disposable adjacent each [the one or more of the] process [chambers] chamber, load lock [chambers] chamber and transfer chamber, the chamber tray [having facility connections connected to] in fluid communication with the [one or more] facility connections [in] of the plumbing tray.

4. (Amended) An apparatus for distributing [facility] facilities to devices on a processing system, comprising:

a) an enclosure having at least one facility interface and at least one [or more] chamber [interfaces] interface; and

b) at least one manifold [or more of] selected from the group consisting of a process gas manifold, vacuum manifold, water manifold and [a] helium manifold disposed in the enclosure connected between the [at least one] facility interface and the [one or more] chamber [interfaces] interface.

5. (Amended) An apparatus for distributing [facility] facilities, comprising:

a) a support frame having one or more of an electronics box, a gas panel, a vacuum line and a controller device disposed thereon.